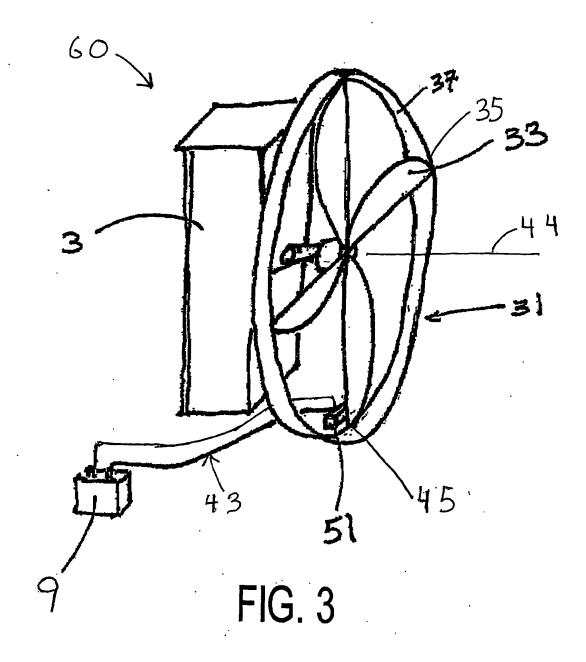
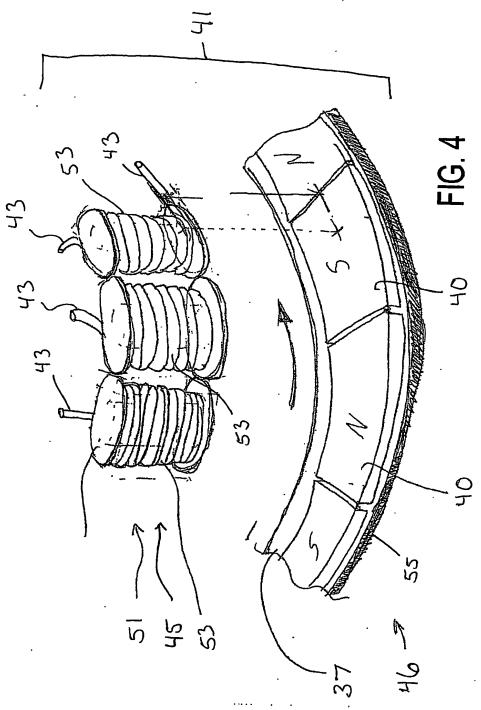


WO 2005/060381 PCT/US2004/020596

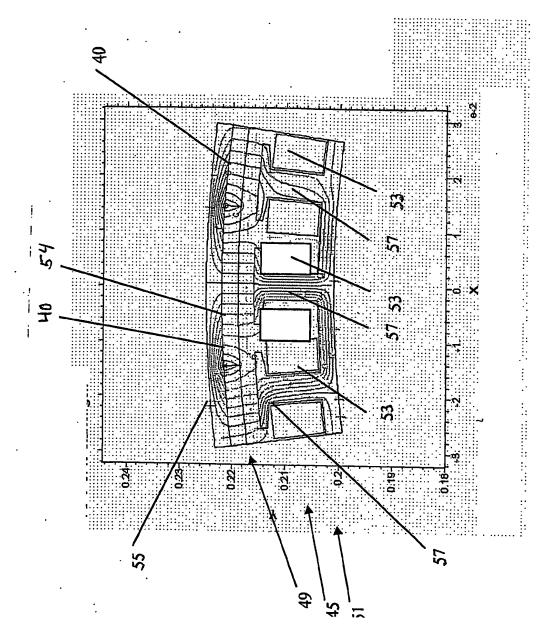


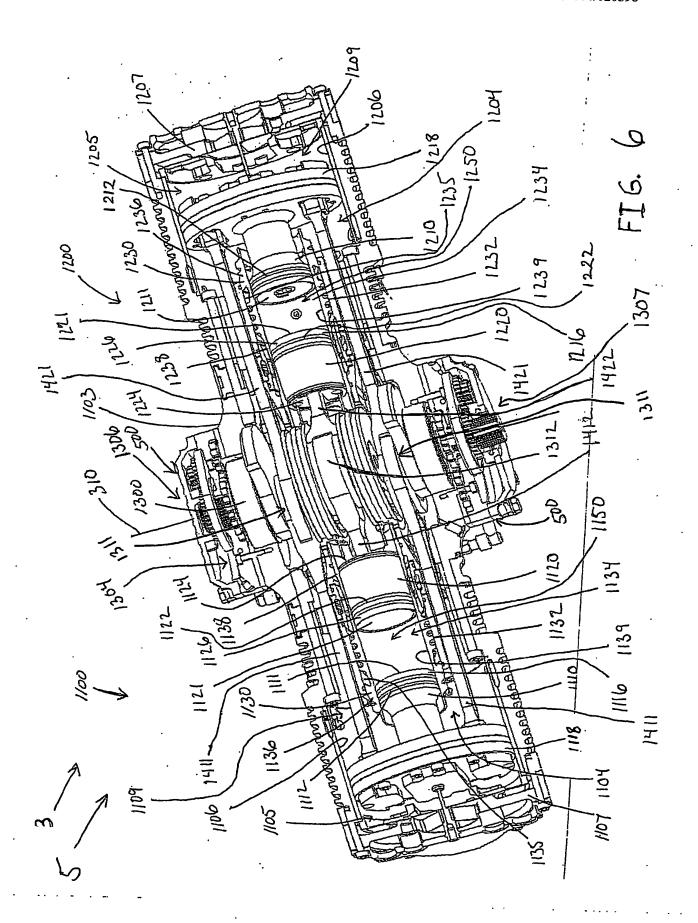
WO 2005/060381



.....







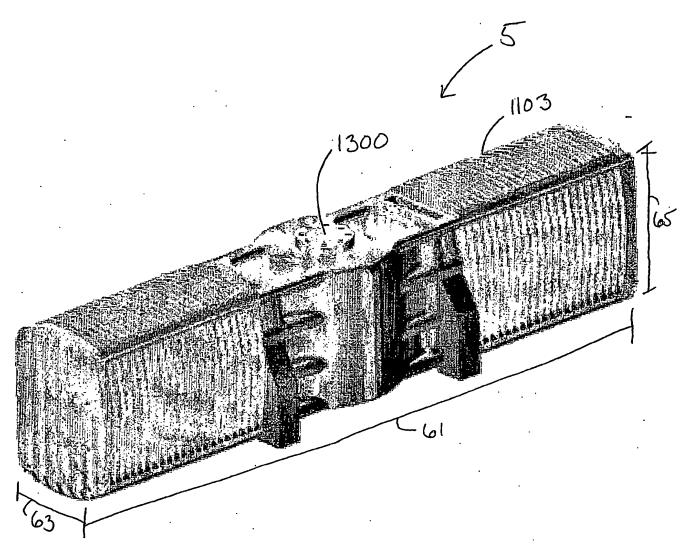


FIG. 7

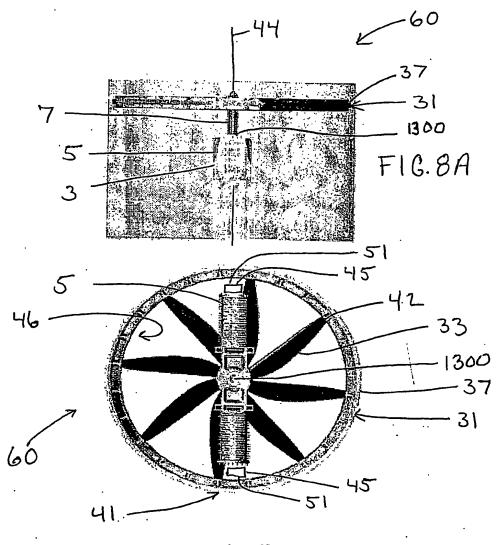
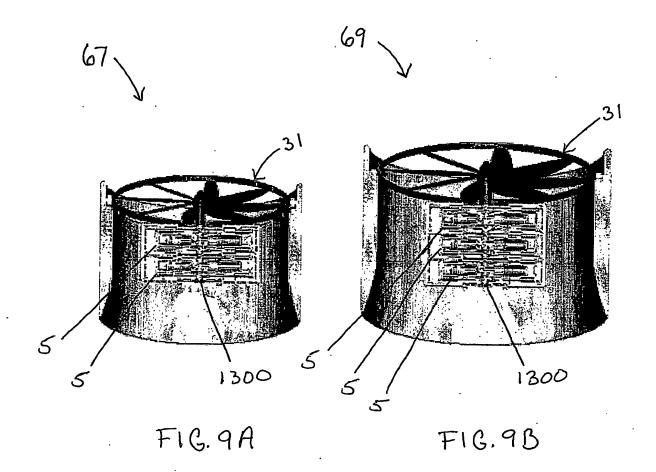


FIG.8B



**Engine Design Input Data** 

Cylinder Bore	В	32	
Engine Stroke			mm
Conrod Length	S	60	mm
	<u> </u>	50	mm
Engine Speed	N	9182	rpm
Compression Ratio	CR	19	15,11
Intake/Boost Pressure (abs)	Pi	0.94	bar
Intake/Boost Temperature	Ti	20	C
Fuel (D for diesel, G gasoline, M methanol)	<del></del>	<u>d</u>	
Stroke (FOUR for 4 stroke, TWO 2 stroke)		two	
Relative Air/Fuel ratio	Lambda		
Number of Cylinders		1.4	·
· · · · · · · · · · · · · · · · · · ·	<u> </u>	6	

**Estimated Engine Performance Data** 

Cylinder Peak Pressure was Assess and the	Pmax™ + 75 · ·	bar # km 1.1
Peak Pressure Phase (ATDC)	Alpha	dog to allege
Break Mean Effective Pressure	BMEP 60-	hare test a
Engine Power at the Given Speed 经股份证金	P 10 35 /	bo - was 3
Engine Torque at the Given Speed	T. 18 27.5	Nm - See -

FIG. 10

FIG. 11 OAV JP8 opoc Engine Families

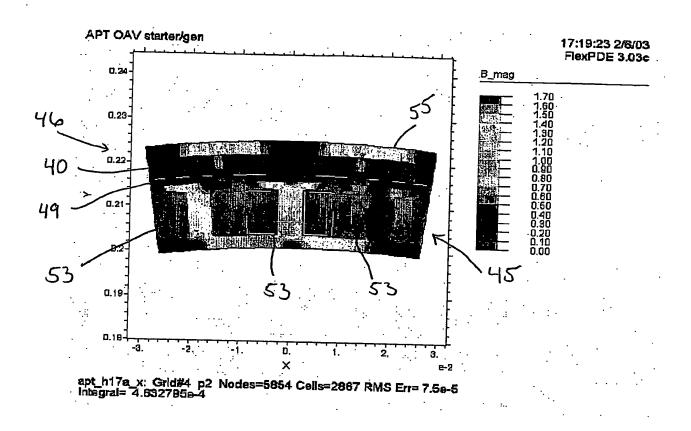
htest two dylinder units popuc module two gear seth		in hp kW g ibs g/kWh lbs/hp-hr % Planetary Transmission	9 6.7 1825 4.0 500 0.822 17% pilaging	17 127 3950 8.7 480 0.789	20% Gear-ratio: I =
wo cylinde	ower ope	KW	<u>_</u>	127 -39	31.3 77
e lightest! t	Piston Stroke	m in h	64 1.04 9	64 :1.04: 17	64 1.04 42
erred: th	MPS	. oas/w	11.0	11:0 2	11.0 2
la (prei	Speed	rpm	12500	12500	12500
MILX	Mach	Ä.	0.85	. 0.85	0.85
¥.	<u>ج</u>	ż	7	7	9

one standardized cylinder unit = opec module, but three gear-set)	MPS Piston Power opoc Weight BSFC Eff Transmission	m/sec cm in hp kW g lbs g/kWh lbs/hp-hr %	10.0 3.00 1.18 9 6.7 3150 6.9 450 0.740 19% Direct flive	430: <b>0.707</b> 20%	91% Gearraffe.
ndardized-cylinder	Power	ф	6	00 1.18 17 12.7	00 1:18 42 31.3
one sta		3	3	: 10.0	- 11.0. 3
lb (onl)	Speed	rpm	10000	10000	11000
MILX	Mach	Ŗ,	0.68	0.68	0.748
Ψ	ঠ	Ż	7	₹.	9

Cyl.   Mach   Speed   MPS   Piston   Power   Opoc Weight   BSFC   Eff   Transmission	t			_	_	
MPS   Piston   Power   Opoc Weight   BSFC   Stroke   In   Np   KW   g   Ibs   GrkWh   Ibs/hp-hr   It.0   2.64   1.04   9   6.7   1825   4.0   500   0.628   It.0   3.98   1.57   17   12.7   5125   11.3   400   0.658   It.0   3.98   It.57   42   It.0   I		Transmission		Direct drive	Direct drive	
MPS   Piston   Power   Opoc Weight   BSFC		Eff	%	17%	21%	23%
MPS m/sec 11.0	6 cylinde	SFC	lbs/hp-hr	0.822	,	
MPS m/sec 11.0	set, no	<b>6</b>	g/kWh	500		-1980-1-
MPS m/sec 11.0	gear	Velght	lbs	4.0	11.3	23.4
MPS m/sec 11.0	es, on	oboc V	5	1825	5125	10600
MPS m/sec 11.0	nodul	wer	ΚW	8.7	12.7	81.9
MPS m/sec 11.0	00	ğ	윤	6	17	42
MPS m/sec 11.0	do='s	ston	rī	1.04	1.57	力.57.
MPS m/sec 11.0	unit	iğ iğ	E	2.64	3.98	3,98
Cyl. Mach Speed Nr. Nr. rpm 2 0.85 12500 2 0.85 8300.	ylinder		m/sec	11.0	11.0	型团1:0-
Cyl. Mach Nr. Nr. 2 0.85 2 0.85	(two-c	Speed	md	12500	8300.	F:8800
Cyl. 2 2 2 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	X	Mach	ż	0.85	0.85	1. U.85
	¥.	<u>.</u>	ž	2	2	新

:	;[		Т	T	Τ
	715. 011 WW. 1970 W. 1		17% Direct drive	Direct drive	25% Direct drive
ndes)	#	%	17%	. 21%	25%
ar units = objec modules, all direct drive and 2 cylindes)	BSFC	lbs q/kWh lbs/hp-hr %	0.822	0.658	0.559
t drive	BS	g/kWh	500	400	340
Lidirec	/eight	Ibs	4.0	11.3	55.0
ules, al	Power opoc Weight	5	2.64 1.04 9 6.7 1825 4.0	3.98 1.57 17 12.7 5125 11.3	378 2.65 42 31.3 24950 55.0
mod	Wer	hp kw	6.7	12.7	31.3
ppgg	g.	g	6	17	42
its = ,	Piston Stroke	Ē	1.04	1.57	2.65
er ün	iğ iğ	шэ	2.64	3.98	6,73
cylinde	MPS	m/sec	11.0	11.0	11.0
three	Speed	rpm	12500	8300	4900
VIII.Y	Cyl. Mach Speed	Nr.	0.85	0.85	0.85
FAI	<u>~</u>	ž	7	2	2

FIG. 12



WO 2005/060381 PCT/US2004/020596

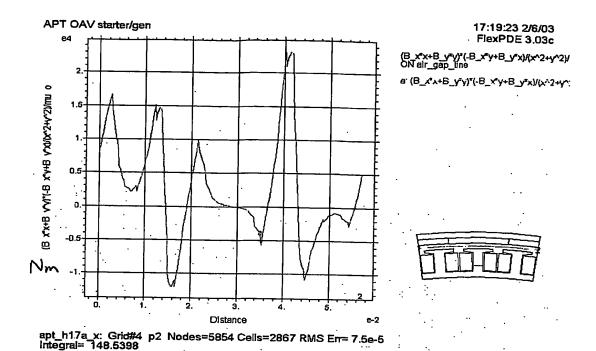


FIG. 13

## This Page is Inserted by IFW Indexing and Scanning Operations and is not part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:
☐ BLACK BORDERS
☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
FADED TEXT OR DRAWING
BLURRED OR ILLEGIBLE TEXT OR DRAWING
☐ SKEWED/SLANTED IMAGES
☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
☐ GRAY SCALE DOCUMENTS
☐ LINES OR MARKS ON ORIGINAL DOCUMENT
☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY

## IMAGES ARE BEST AVAILABLE COPY.

OTHER:

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.